

The preferred surfactants employed in the preparation of our foamable latex composition are those alkylphenoxypolyethoxyethanols such as the octyl and nonyl alkyl derivatives which are commercially available, and wherein the number of ethoxy groups; that is, the mole ratio of the ethoxy groups in the molecule, ranges from approximately from 30 to 100, and more particularly, from about 40 to 70. Other alkylphenoxypolyalkoxyalkanols may be employed as desired providing they provide an equivalent hydrophobic-hydrophilic balance similar to those octylphenoxypolyethoxyethanols. Typical surfactants would include C₆—C₁₆ alkylphenoxy, C₂—C₈ alkoxy, C₂—C₈ alkanols prepared by the reaction of alkyl phenols with epoxide compounds such as propylene oxide, ethylene oxide, octylene oxide, butylene oxide, C₁₂—C₁₄ epoxides and other such epoxide-type compounds reactive with phenols to provide nonionic surfactants, the alkylphenoxypoly C₂—C₃ alkoxy C₂—C₃ alkanols, the preferred surfactants employed in preparing our stable emulsion copolymers. In general, the percent of the alkoxy groups in the alkylaryl polyether surfactants may range from about 85 to 95 percent by weight.

EXAMPLE 7

An aqueous emulsion of the copolymer, as of Example 1, was prepared, except that different surfactants were employed as set forth in 7A to 7O. After preparation, the stable aqueous copolymer was compounded with conventional fillers, pigments, foaming and lubricating agents to form a latex composition (part A) having a dry weight of 188 parts.

A foam was prepared by adding to part A, just prior to foaming, about 10 parts of a melamine-formaldehyde condensate resin and 10 parts of benzyl butyl phthalate and the resulting composition mixed in a laboratory mixer at high speed for about 2 minutes. When the foam reached the desired level, the mixer speed was reduced and the foam refined for about 1 minute and the cup height (3 ounces) determined. The cup height was 15 to 20 grams, otherwise additional whipping and refining was carried out.

The foam was knife-coated onto a cotton fabric at a thickness of about 35 mils and the coated fabric placed in an oven for 2 minutes at 300°F to gell the foam. The gelled foam was then crushed by placing an aluminum foil on top and running the fabric through a pair of rubber squeeze rolls. The crushed gelled foam was then cured in an oven for 3 minutes at 275°F.

A surfactant was employed in the preparation of the aqueous emulsion of the copolymer as follows with the weight of the surfactant employed kept constant:

7A	Triton X405	t octyl phenoxy polyethoxyethanol	40 ethoxy groups
7B	Triton X305	t octyl phenoxy polyethoxyethanol	30 ethoxy groups
7C	Igepal CO 977	nonyl phenoxy polyethoxyethanol	50 ethoxy groups
7D	Triton X705	t octyl phenoxy polyethoxyethanol	70 ethoxy groups
*7E	50% Triton X305		about 34 ethoxy groups
	50% Triton X405		

*7F	50% Triton X305		about 58 ethoxy groups
	50% Triton X705		
*7G	50% Triton X165		about 39 ethoxy groups
5			
	50% Triton X705		
7H	Igepal CO 887	nonylphenoxy polyethoxyethanol	30 ethoxy groups
7I	Igepal CO 897	nonylphenoxy polyethoxyethanol	40 ethoxy groups
10			about 29 ethoxy groups
	50% Igepal CO 897		
	50% Triton X165		
	98% Triton X405	alkylaryl polyether sulfate	
15	2% Triton X202	ethoxylated sodium sulfo succinate	
	98% Triton X405	sodium lauryl sulfate	
*7L	2% Aerosol A102		
7M	98% Triton X405		
	2% Sipex UB		
7N	95% Triton X405		
	5% Triton X202		
20	95% Triton X405		
	5% Sipex UB		

* solids basis

Triton is a trademark of Rohm & Haas Co.

Igepal is a trademark of GAF Corporation

Sipex is a trademark of American Alcolac

Aerosol is a trademark of American Cyanamid

The latex compositions 7O and 7N coagulated in 2 and 7 days respectively, while 7B increased in viscosity on dilution and provided a poor quality foam. Examples 7C and 7G also became thick on dilution, but provided a good quality foam, and all others produced acceptable foam and and crushed foam fabrics.

The results indicate that the octyl and nonylphenoxypolyethoxyethanols having from about 30 to 70 moles of ethoxy groups or molecules in the absence of anionic surfactants, 2 percent or less of the surfactant weight provided an acceptable foamable acrylic latex composition.

Our invention has been illustrated by the examples set forth, which examples are not to be restrictive of the scope of the invention.

What is claimed is:

1. A method of preparing a foamcoated sheet material, which method comprises:
 - a. foaming an aqueous latex emulsion containing:
 - i. a copolymer comprising from about 50 to 100 parts by weight of a lower alkyl acrylate; about 5 to 20 parts by weight of a nitrile selected from the group consisting of acrylonitrile and methacrylonitrile; about 0.5 to 5.0 parts by weight of a monomeric unsaturated carboxylic acid; and about 0.5 to 5.0 parts per weight of an acrylamide;
 - ii. a cross-linking amount of a coreactive methylol amino compound; and
 - iii. from about 0.1 to 10 percent by weight based on the weight of the monomers of a nonionic alkylphenoxypolyalkoxyalkanol surfactant containing from about 30 to 70 ethoxy groups;
 - b. coating a thin layer of the foam latex onto one surface of a sheet material, the foam layer characterized by small but uniform bubble structure;
 - c. drying the foam layer for a time insufficient to cross-link substantially the copolymer, said drying carried out without a breakdown in the bubble